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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/644,072	08/18/2003	Hong Cao	130109.497	4625

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EXAMINER	
NGUYEN, SANG H	

ART UNIT	PAPER NUMBER
2877	

DATE MAILED: 05/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/644,072	CAO ET AL.	
	Examiner	Art Unit	
	Sang Nguyen	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 August 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6/22/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 06/22/04 has been entered. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kustermann (U.S. Patent No. 6,248,174) in view of Seymour (U.S. Patent No. 5,110,213).

Regarding claim 1; Kustermann teaches a method for determining the degree of loading or coating medium (14 of figure 1) onto a material web (18 of figure 1); comprising:

- measuring the transmittance of light the material web (18 of figure 1) when in an unloaded state by a first sensor unit (44 of figure 1 and col.4 lines 36-40);
- measuring the transmittance of light the coated onto the material web (14, 18 of figure 1) when in a loaded state by a second sensor unit (46 of figure 1);

- comparing the difference in transmittance (48a of figure 1) from the unloaded state to the loaded state by a comparator (43 of figure 1) and therefrom determining the degree of loading by a control unit (42 of figure 1). See figure 1-2.

Kustermann teaches all of features of claimed invention except for carbon substrate. However, Symour teaches that it is known in the art to provide a method and apparatus for measuring concentration of a material in a sample having a carbon sheet or substrate (11 of figure 1 and col.3 lines 40-45).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine method for determining the degree of loading or coating medium onto a material web of Kustermann with carbon substrate as taught by Seymour for the purpose of measuring accurately concentration of a material on the carbon sheet with high speed.

Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kustermann in view of Seymour as applied to claim 1 above, and further in view of Background of Prior Art of Present Invention (page 2).

Regarding claims 2-3; Kustermann in view of Seymour discloses all of features of claimed invention except for the carbon substrate is a carbon fiber paper or a carbon cloth. However, PAPI teaches that it is known in the art to provide the carbon substrate is a carbon fiber paper or a carbon cloth (page 2 lines 7-14). It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine method for determining the degree of loading or coating medium onto a material web of

Kustermann with carbon substrate is a carbon fiber paper or a carbon cloth as taught by PAPI for the purpose of reducing cost of production with a high quality of level conductivity.

Regarding claim 4; Kustermann in view of Seymour discloses all of features of claimed invention except for a continuous web impregnated with an electrically conductive filler. However, PAPI teaches that it is known in the art to provide a continuous web impregnated with an electrically conductive filler (page 2 line 10-14). It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine method for determining the degree of loading or coating medium onto a material web of Kustermann with a continuous web impregnated with an electrically conductive filler as taught by PAPI for the purpose of reducing cost of production with a high quality of level conductivity.

Regarding claim 5; Kustermann in view of Seymour discloses all of features of claimed invention except for the waterproofing agent is PTFE. However, PAPI teaches that it is known in the art to provide the waterproofing agent is PTFE (page 2 lines 15-23). It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine method for determining the degree of loading or coating medium onto a material web of Kustermann with the waterproofing agent is PTFE as taught by PAPI for the purpose of minimizing the contact resistances at the transitions between the membrance and solid electrolyte layers.

Claims 6-8 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kustermann in view of Seymour as applied to claim 1 above, and further in view of Bonsel et al (U.S. Patent No. 6,197,147).

Regarding claims 6-8 and 11; Kustermann in view of Seymour discloses all of features of claimed invention except for the waterproofing agent is selected from the group consisting of polyethylene, polypropylene and ethylene-propylene copolymer and the degree of loading of the waterproofing agent within the carbon substrate when in loaded state ranges from 1 % to 50 % or 4 % to 30 % by weight, wherein the carbon substrate has a thickness of less than 0.5 mm. However, Bonsel et al teaches that it is known in the art to provide the waterproofing agent (col.1 lines 35-38) is selected from the group consisting of polyethylene, polypropylene and ethylene-propylene copolymer (col.4 lines 1-40) and the degree of loading of the waterproofing agent (col.1 lines 35-38) within the carbon substrate when in loaded state ranges from 1 % to 50 % or 4 % to 30 %by weight. (col.3 lines 10-16 and col. 6 lines 40-55), wherein the carbon substrate has a thickness of less than 0.5 mm (col.3 lines 5-9). It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine method for determining the degree of loading or coating medium onto a material web of Kustermann with the waterproofing agent is selected from the group consisting of polyethylene, polypropylene and ethylene-propylene copolymer and the degree of loading of the waterproofing agent within the carbon substrate when in loaded state ranges from 1 % to 50 % or 4 % to 30 % by weight, wherein the carbon substrate has a thickness of less than 0.5 mm as taught by Bonsel et al for the purpose of the

production low cost and performance satisfy the requirements of users with high mechanical stability, a high temperature resistance and an adequate resistance of chemicals using materials in electrochemical cells.

Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kustermann in view of Seymour as applied to claim 1 above, and further in view of Bauer (U.S. Patent No. 4,737,651).

Regarding claims 9-10; Kustermann in view of Seymour discloses all of features of claimed invention except for the light source for transmitting and measuring at 4000 A to 7000 A, wherein the light source is selected from the group consisting of halogen, tungsten, fluorescent and UV lamps. However, Bauer al teaches that it is known in the art to provide the light source (12 of figure 1) for transmitting and measuring at 4000 A to 7000 A (col.3 lines 25-30), wherein the light source (12 of figure 1) is selected from the group consisting of halogen, tungsten, fluorescent and UV lamps (col.2 lines40-49). It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine method for determining the degree of loading or coating medium onto a material web of Kustermann with the light source for transmitting and measuring at 4000 A to 7000 A, wherein the light source is selected from the group consisting of halogen, tungsten, fluorescent and UV lamps as taught by Bauer for the purpose of good transmitting light through weight paper substrate and detecting accurately coating paper substrate.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hohenthanner et al (2004/0023105) discloses process for the manufacture of catalyst-coated substrates; Fan et al (6627035) discloses gas diffusion electrode manufacture and MEA fabrication; Beloserkovsky et al (5795394) discloses coating weight measuring and control apparatus; Beckstein (4676651) discloses method and apparatus for controlling the dye receptivity of textiles; Izawa et al (JP 06102206) discloses method and apparatus for inspecting defective part of paper in coating machine; or Okamoto et al (JP 60115804) discloses method and device for measuring coating amount .

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sang Nguyen whose telephone number is (571) 272-2425. The examiner can normally be reached on 9:30 am to 7:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on (571) 272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SN

Sang Nguyen/SN

May 10, 2005

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16/MAY/05